tary canal to its complete function gave the patient opportunity to gain in strength. The moment the temporary suture became irreparable, on December 27th, I decided to make the attempt at a permanent anastomosis of the two loops in the wound. The temporary suture had performed good service for almost eleven days. Fortunately, at this time, all the original gauze drainage into the abscess cavity and its surroundings had been removed, and the wound was practically closed up to the fecal fistula. At this last operation on December 27th the two portions of the intestine in the wound were separated and drawn out of the peritoneal cavity until there was at least 6 cm. of normal peritoneal surface. I was surprised at the few adhesions. They extended hardly more than 1 cm. beyond the parietal peritoneum of the wound. There was little difficulty in separating and withdrawing these two loops of intestine and at the same time protecting the peritoneal cavity with gauze. That portion of these two loops forming the fecal fistula which was covered with granulation tissue was excised. This left practically normal intestine. A long lateral anastomosis was then made—at least 3½ cm.—beginning about 1½ cm. from the cut end. The ends were invaginated and closed. The anastomosed gut was allowed to drop back into the peritoneal cavity. It, however, was not pushed back. About 1½ cm. projected beyond the skin. It was left in this position and surrounded with a few pieces of gauze. Only two sutures were placed in the lower portion of the wound. I considered that a lateral suture was much safer than an end-to-end, and that it was better not to make any attempt at complete closure of the wound. The result apparently has justified this procedure. The suture held. The projecting anastomosed loops were rapidly withdrawn into the abdominal cavity and, after the removal of the gauze, became adherent to the recti muscles, and within three weeks the wound closed over with granulation tissue, and to-night, four weeks after operation, is completely covered with epidermis. The child has never exhibited symptoms of obstruction since the anastomosis.

In reporting the fortunate result of such a difficult and complicated surgical case it is only just to add that such results in surgery would be impossible except in a well-equipped hospital. In this instance especially I am convinced that the operative surgery would have been of little avail without the faithful and skilled attention of the trained nurse and the constant vigilance of the resident surgeon.

THE RESULTS IN BLOODLESS REPOSITION OF CONGENITAL DISLOCATION OF THE HIPS, WITH A REPORT OF CASES.

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The cases reported were all subjected to forcible correction two to five years ago.

Case I.—Boy, aged three years; walked since the age of thirteen months. There was marked lordosis, limping, and a shortening of the affected (right) limb of one and a quarter inches (3.25 cm.). He was placed in bed and extension of four pounds applied, with the limb in an abducted position, for eight weeks. He was then etherized (December 1, 1900), the adductor muscles cut, and the head of the femur replaced by flexion, abduction, and outward rotation, as advised by Paci. As reluxation occurred on attempting complete extension of the limb, it was bound in an abducted and externally rotated position on a straight posterior splint, which extended from beneath the back out along the posterior surface of the thigh to the knee, and he was confined to bed. The luxation recurring, the bone was again replaced and extension of four pounds, with the limb in the abducted position, was again applied. At the end of two months the leg was rotated strongly outward and the limb placed in plaster in marked abduction. At this time the head readily left its new position. Two months later the plaster was changed, the limb brought somewhat down, and a new plaster cast applied, with the limb markedly everted. The head now seemed fixed, and a few weeks later he was allowed to walk around. The plaster cast was afterward replaced with a metal brace, which held the foot in marked eversion.

On examining him now, two years and five months after reposition, we find about 2 cm. (four-fifths inch) shortening—a gain of 1.25 cm. The lordosis has almost entirely disappeared. The movement up and down in the hip is no longer present, and the head is now firmly fixed at the upper anterior edge of the acetabular region. It is what is termed an upward and anterior transposition. Instead of the head being loose on the dorsum of the ilium above and posterior to the acetabulum, it is now firmly fixed at its upper anterior edge. The functional result is good, as the movements of the hip are free and painless; he uses roller-skates, but there is still some limping, which is not at all marked. This is not an example of a perfect result, but it is a satisfactory result, as the only disability which remains is that due to shortening, which can be compensated by the high shoe. There is twisting of the neck in this case.

Case II.—A girl, aged four years, born after a difficult parturition. Had been walking for a year and seven months previous to applying for treatment. Her peculiar waddling gait was noticed since she began walking. She was very unstable on her feet, falling readily. Lordosis was marked, the left trochanter being 3.5 cm. and the right 3.75 cm. (one and a half inches) above Nélaton's line. She was put to bed for six weeks, with first three and then five pounds' extension, with the limbs widely extended. She was then etherized, the adductor longus tendons cut, and both hips were readily reduced by the manipulations used in the previous case. A plaster cast was then applied, holding the limbs abducted not quite to a right angle, and rotated out so that the heels and toes were in the same transverse straight line. For convenience in handling and strength, a splint was fastened across the thighs from one to the other just above the knees. After two months a new cast was applied and the limbs brought partly down. As the right hip showed a tendency to slip out of position, a new cast was applied and continued below the knees. Seven months after reposition the right leg swelled and showed evidences of pressure (probably by the anteverted head pressing the femoral vein against the cast), so the cast was removed and reapplied. Two months later a plaster cast was applied to the hips and thighs and continued down with jointed side irons to the shoes, where they were fastened, keeping the feet everted. She now began to walk a little sideways by holding onto the bed. One month later, ten months after reposition, she walked with crutches. All apparatus has been discontinued for more than a year.

On examining her, now two years and five months after operation, the left hip is found to be apparently normal in every respect. The right hip is found to be somewhat higher up and anterior than normal. On measuring it is found to be 2 cm. (four-fifths inch) shorter than the left. In other words, it is in a position of anterior and upward transposition. It seems firm and does not slide up and down when pressure is made on it. The lordosis is gone, but she still limps, which may partly be removed by the elevation of the sole of the shoe.

CASE III. was a girl, aged three years, with both hips dorsally luxated. The trochanters were very prominent and she walked with difficulty, wabbling from side to side.

She was etherized, the adductors cut, and both hips replaced by manipulation. She was put up in plaster, the legs being abducted in the frog position, not quite at right angles to the body. In five weeks another cast was applied and left for another month. One hip was then found to be out. The cast was reapplied and a month later the hip was again found to be out. Operation was advised and refused. An extension brace was then applied and the child allowed to go around on crutches. After coming for awhile as an out-patient the case disappeared, the father being apparently desirous of escaping paying for the apparatus, and it was impossible to find him.

In this case one hip remained in place ever since its first replacement and never showed any tendency to come out again, even though the child had been walking on it for a couple of months. This case was lost sight of about six months after replacement. A fair result could have been obtained by brace treatment in the other hip also had attendance been continued.

CASE IV.—A girl, aged eight years, I showed to the Pediatric Society over three years ago. One hip was replaced five years ago by manipulation, the other by operation. A skiagram demonstrates a perfect anatomical result in the hip replaced by manipulation, and that the functional result in this hip is absolutely perfect now, five years later. The operated hip is firmly fixed in an anterior upward transposition.

To sum up, out of seven dislocated hips in four patients, one was operated on and one was lost sight of while under treatment. Of the other five, two were anterior transpositions and three were apparently perfectly normal in every way five years, two and a half years, and the last six months after replacement by manipulation.

Of the two anterior transpositions, one was a single dislocation in a boy, with a twisting of the neck of the femur; and while there is some shortening and limp remaining after two years and five months, the result is still satisfactory, because the head has become fixed and the centre of gravity has been thrown farther posteriorly. The former prevents any further increase of disability as age advances; on the contrary, the functional results will probably improve rather than retrograde. The latter removes the tendency to lordosis, which later in life may prove very distressing.

The other transposition occurred in Case II., a double one, in which the other hip remained reduced in the acetabulum. This leg showed a shortening of about four-fifths of an inch, and the resulting limp is quite distinct. The fact, however, that one has been able to reduce one hip perfectly and fix the other one makes the result in this case also a satisfactory one, as the lordosis and tendency to increase have both been eliminated and the walking much improved. She plays and goes to school without getting tired. Previous to treatment the disability in this child was quite marked, as she was very unstable on her legs and frequently fell down. It is now two years and five months since reposition.

As regards the method of reduction, it is too intricate a subject to be discussed at this time; but I might state that these hips were practically all reduced by the method of circumduction as practised in traumatic luxations and as applied to congenital and pathological luxations by Paci, of Pisa, since 1888, with the addition of tenotomy of the adductor longus tendon.

There are two principal ways of replacing congenitally luxated hips. One is by an open operation in which the way for the head is cleared by the knife, and the other is forcible reposition, combined or not with extension and tenotomy. The latter has also been called the bloodless method in contradistinction to the open cutting operation.

Let us inquire into the results of the method by forcible reposition. In so doing it is essential that we bear in mind that different operators have different standards of what constitutes a cure. An exact reporter will of necessity have less so-called cures than an inexact one, and yet the results of the former may be better than those of the latter. The difference in the results of various cases is comparatively slight. They shade gradually from the bad into the good, and it is very difficult to draw a positive line of distinction. The age also has a marked influence on the results, and the older the patient the more difficult is it to achieve good results. There is likewise a considerable difference in the cases themselves, and this modifies the results. It is obvious that, with deformed femoral heads and necks and undeveloped acetabula, perfect results are an impossibility.

The difficulty of securing absolutely perfect results caused Paci to be extremely conservative as regards what was achieved. He only professed to put the head as near as possible in the acetabulum, and in his earlier writings, at least, he did not claim to put the head absolutely back into a normal position. It was only after he had been working six or seven years that, in 1894, he was able to obtain a specimen post-mortem which had been replaced by his method by A. Nota, of Turin, four months previously. This showed both acetabula well formed, but one better than the other, thus conclusively demonstrating what had been doubted previously by Lovett, Lorenz, Kirmisson, and others. Thus we may accept as a demonstrated fact that within a period of four months from the time of reposition it is possible for at least a certain proportion of the replaced hips to have again resumed a practically normal condition. Kirmisson has always held that true repositions were very rare, and the conservative position of Paci has already been alluded to. When Lorenz, however, began practising the forcible reposition, he claimed that his results were absolutely curative and that the reposition was exact.

Kirmisson replied to this at the Paris International Congress in 1900, and showed that the skiagraph has demonstrated his former position to be correct; and Lorenz himself now speaks of "anatomical results," by which is meant that the head of the bone is shown apparently well seated in a socket, with a good overhanging edge to support it. Cases in which a displacement of the head can be shown are spoken of as transpositions. In these the head is usually fixed either anteriorly or anteriorly and upward. From this it is readily seen that when writers speak of a cure, one is not certain what is the actual condition obtained. Even when the result is a so-called cure by transposition, the functional results may be and usually are excellent. What some operators would call anatomical results (or cures) others might call transpositions.

When one considers the immediate results they may be either good or bad. If good, the head may be replaced at least approximately at the site of the original acetabulum with no serious effects from the manipulations employed. If bad, there may be a failure to replace the bone and serious injuries may be occasioned by the efforts at reduction. That the danger of serious injury being produced was appreciated by Paci is evidenced by his carefully cautioning against the use of undue force, for fear of fracturing the femur. The manner in which Lorenz applies forcible reduction is, however, mainly characterized by the exercise of great force; therefore, one is not surprised to find the resultant injuries both numerous and extensive. Paci in some of his cases used such mild manipulations as not to require an anæsthetic. Lorenz[1] states that in 450 cases he had three deaths from chloroform and shock alone; in addition there were eleven fractures of the neck of the femur, one of the pubic bone, one of the ilium, three paralyses of the peroneal nerve, seven of the anterior crural, besides some of the sciatic, and one total gangrene of the extremity. There were also instances of stiffness of the joint and the serious ruptures known as Narath herniæ.

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[1] Heilung der angeborenen Hüftgelenks-Verrenkung, Wien, 1900.

Heusner, of Barmen,[1] says that he and Hoffa have had even more serious results. Hoffa (German Congress, 1899) has had tearing of the soft parts (vulva and urethra), fractures and separation of the epiphyses, paralysis of the sciatic and anterior crural nerves, and suppuration of the hæmatomas which formed at the site of the rupture of the adductors. He even lost one child of six years.

Drs. Wilson and Dinkelspiel state that one of the patients operated on by Prof. Lorenz in this city during his recent visit was also seized with convulsions and went into a stupor, which, however, did not end fatally.

The dangers of circulatory disturbances occurring is shown by my Case II., in which some time after reposition the leg became swollen and blue and the cast had to be removed. This was due to the head, as it came forward, pressing the femoral vein against the inside of the cast. The Narath herniæ alluded to were described by Narath,[2] of Utrecht, who said they had occurred in 12 per cent. of his cases. They were large herniæ which came down beneath Poupart's ligament, and were supposed to be due to tearing of the fascia lata and other tissues in front of the head of the femur. Lorenz, both by his writings and demonstrations, has advocated the exercise of such extreme force in attempting reductions that his followers will probably repeat some of his bad as well as his good results.

When we come to consider the ultimate results we find that we must allow some time to elapse before assuming them to be definite. When a congenitally displaced hip has been replaced it is not as if the case was one of traumatic luxation. In the latter a normal head goes back to a normal acetabulum and stays there; in the congenital a more or less altered head goes back to a more or less altered acetabulum and often does not stay there. In Case IV., one of congenital double luxation, on one side the hip remained in place, but the other persistently luxated and was, therefore, operated on by open incision. One hip in Case III. persistently reluxated and was put under treatment by apparatus. One hip of Case II. also came out, but was eventually fixed in an anterior transposition. In Case I., of single luxation, the head was only fixed by repeated reluxations.

This tendency to reluxation seems to exist in approximately one-half the cases. In my own experience the cases that have remained reduced have done well from the start, and have shown but little tendency to reluxation at any time after replacement. The exact position of the head of the femur cannot be determined while the fixation bandage is on. Therefore, it is at the time of the first removal of the plaster bandage that one is able to determine whether or not reduction has been maintained. If it has not, reposition must again be performed. In most of the cases which show a more or less marked tendency to reluxation a good result can be obtained by means of prolonged treatment. They usually constitute the cases known as transpositions, in which the head of the femur, instead of being placed exactly in the acetabulum, is more toward its upper edge or upper anterior edge, near the anterior inferior spine of the ilium. These patients can usually walk fairly well without marked fatigue. The limb is usually shorter than normal, but its range of movement is good. Some limping usually persists in spite of a high shoe, and if the case is a double one, with one hip replaced and the other transposed, the limping may be marked. The lordosis is in most cases nearly or quite abolished. It is evident that good results cannot be expected if the bones are abnormal. The neck or shaft of the femur may be twisted so that when the foot points forward the head is in a position of anterior transposition. Some of these cases can be remedied by doing a subtrochanteric osteotomy and turning the foot more outward.

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[1] Zeitschrift für orthopædische Chirurgie, 1902.

[2] Report of German Surgical Congress, 1899.

In other cases instead of the head and neck forming an angle of 130 degrees or more with the shaft it may form a right angle or less. This causes a condition known as coxa vara, and the thigh is more or less fixed in an adducted position. Abduction in these cases is much restricted. Shortening is also present. When there is a deformity or partial lack of the cotyloid cavity and head of the femur, complete failure might occur, or considerable shortening with a more or less marked coxa vara condition, even if one was successful in fixing the head.

Let us now look at some of the statistics which have been brought forward as illustrating the results of the method of forcible reposition:

Lorenz, in his book published in 1900, gives, out of 212 cases, 108 anatomical cures in which the skiagraph showed the head under a good, overhanging, acetabular edge. Of these 108, 61 were one-sided luxations occurring in 102 cases, and 47 were in children with double luxations and occurred in 110 joints in 55 children. Subluxation occurred in 20 cases and forward and upward luxation in 82 cases.

Hoffa,[1] out of 64 cases, 42 single and 22 double, reduced all; they varied from two to eight years in age. Great injuries were done to the soft parts, etc. Of the 42 single repositions, 4 remained cured and 1 of these was found to have a condition of coxa vara. In 1 case complete reluxation followed; in 25 the head was transposed in front and up, and in 11 more anterior, near the anterior inferior spine. Of the 22 double luxations, in 3 both sides reluxated; in 4 there was reposition on one side and transposition on the other, and in the remaining 15 there was transposition in the hips of both sides.

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[1] Archiv für klin. Chirurg., Bd. lix., S. 525.

Max Schede's clinic, as given by Petersen,[1] in 113 cases, 61 single and 52 double, there were 6 cures; in 48 the head was near the correct position in the acetabulum, and in 59 it was transposed anteriorly.

Mikulicz's clinic, as given by Drehmann,[2] in 131 cases there was failure to replace in 7, 1 of which was over ten years of age and the other 6 from four to ten years. In 118 repositions, operation was later done in 6 for reluxations; in 4 cases the results were not known, and 2 cases died, leaving 106—82 single, 42 double; 87 of these have been under treatment one-half year or more—66 single, 21 double. Of the 66 single, in 48 reposition remained and in 18 was transposed.

Of the 21 double cases, with 42 hips, 6 failed, 14 were transposed, and 22 remained in position.

Heusner (German Congress, 1899) considered in 10 per cent. the results excellent, in 30 to 50 per cent. good after long treatment, and in the remainder unpromising.

Karl Ludloff, in 11 cases, claims satisfactory results in 9; 2 were nearly ideal, 4 were good, 3 showed coxa vara; in 1 was a partial reluxation, and in 1 there was a double coxa vara with marked restriction of motion.

Among others, Kollicker, in 25 single and 13 double cases, claimed only two cures; Codivilla, in 66 cases, four to five, and Kümmel about 5 per cent., stating that unfortuate occurrences are not rare.

The experiences of American surgeons—Bradford, Whitman, Sherman, Ridlon, and others—have been much like those already related.

In considering the various facts here presented, one may fairly conclude that Kirmisson had good grounds for stating that perfect reposition was rarely attained. They also furnish evidence of the good judgment of Paci in refraining from claiming for his method an absolute cure. If one is critical, as is apparently the case with Kirmisson, Hoffa, Kollicker, Schede, Codivilla, and others, then one will call 5 per cent. cured. If one is more easily satisfied, then the cures will amount to 50 per cent., as in the case of Lorenz, or more, as in the case of Mikulicz. The truth probably is that the results in the hands of the various operators do not differ so much as do their statistics. It appears to be the fact that total failures below the age of six to eight years are comparatively rare; that approximately one-half the cases are replaced in a more or less normal acetabulum and are kept there; that a small proportion of these are apparently quite normal; that in most of the remainder the head is transposed forward or forward and upward and remains in this position. In many of these cases of partial repositions the condition can be subsequently improved, as pointed out by Whitman, Max Schede, Bradford, Kirmisson, and others, by subsequent operations, as osteotomy. A certain number of cases seem to do well from the moment of reposition and remain in place without trouble; perhaps half show more or less of a tendency either to slip backward into their previous luxated position or anterior. These are to be treated by subsequent reposition and reapplication of the bandages and the use of various forms of apparatus. To speak of a cure soon after reposition has been performed is ridiculous. Lorenz stated that he did not bring the legs parallel to each other for two years after reposition. The exact power possessed by the human economy to form a new joint is as yet a matter of doubt. The pathological preparations obtained of joints which had been replaced some time before death, as those of Paci, Bradford, Ochsner, and others, show that good joints do form, but they may have been nearly normal at the time of reposition. The fact that deformities of the head, neck, and acetabulum may exist should cause one to be guarded in promising as to the results to be achieved by treatment in any given case.

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[1] Deutsche Zeitschrift für Chirurgie, Bd. l., S. 534.

[2] Zeitschrift für Orthopædische Chirurgie, 1903, p. 304.

TORTUOSITY OF THE AORTA.

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AND

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In the course of a series of studies upon lesions of the aorta, which consisted of careful clinical examinations combined with fluoroscopic and radiographic examinations, we were surprised at the frequency with which some of the lesser signs of aortic aneurism were present. Among these were inequality of the radial pulses, suprasternal pulsation, tracheal tugging, accentuation of the aortic second sound, and brassy cough. Not infrequently the patients complained of certain other symptoms, particularly dyspnœa, anginoid attacks, and localized pains. In many cases aneurism was undoubtedly present, either causing characteristic pressure symptoms or being manifest as an external expansile pulsation. In a number of cases, however, we observed with the fluoroscope an expansion in the shadow of the aorta at the level of the fifth or sixth dorsal vertebra, extending from one-half to two inches to the left. This, we supposed, represented an aneurismal dilatation of the aorta at this point. Upon all cases that died effort was made to obtain autop-